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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/526,488 | 03/04/2005 | Takahide Maczawa | 120736.00103 | 1850 |
| 27557 | 7590 | 10/09/2007 | | |
| BLANK ROME LLP 600 NEW HAMPSHIRE AVENUE, N.W. WASHINGTON, DC 20037 | | | EXAMINER LEO, LEONARD R | |
| | | | ART UNIT 3744 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/526,488

Applicant(s)

MAEZAWA ET AL.

Examiner

Leonard R. Leo

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>3/05, 7/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10 and 12-13 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ghiani or Jamison et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6-7, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vollhardt in view of Gronnerud et al.

Vollhardt (Figure 7) discloses all the claimed limitations except flat tubes. Note fins 2 between tubes 3.

Gronnerud et al discloses a tube an shell heat exchanger comprising a pair of headers 3 and a plurality of tubes 8, wherein the tube may have a flat oval shape (column 3, lines 41-43) for the purpose of improving the heat transfer efficiency.

Art Unit: 3744

Since Vollhardt and Gronnerud et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Gronnerud et al would have been recognized in the pertinent art of Vollhardt.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Vollhardt flat oval tubes for the purpose of improving the heat transfer efficiency as recognized by Gronnerud et al.

Regarding claims 1 and 4, the specific spacing between the tube end parts is considered to be an obvious design choice, producing no new and/or unexpected results and solving no stated problem. One of ordinary skill in the art would minimize the spacing to optimize space requirements.

Regarding claims 6-7, Figure 7 of Vollhardt discloses substantially equal tube lengths between the diagonal headers 22, 23'.

Regarding claim 9, Figure 8 of Vollhardt discloses a plurality of headers 22, 23 connected by distributors 31, 30, respectively.

Claims 2-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vollhardt in view of Gronnerud et al as applied to claims 1, 4, 6-7, 9 and 11 above, and further in view of Ghiani or Jamison et al.

The combined teachings of Vollhardt and Gronnerud et al lacks bundled tube end parts.

Ghiani discloses a heat exchanger comprising a pair of headers 1, 2; a plurality of parallel tubes 5 with integrally bundled end parts 6 for the purpose of simplifying manufacture.

Art Unit: 3744

Jamison et al discloses a heat exchanger comprising a pair of headers 26, 28; a plurality of parallel tubes 20 with integrally bundled end parts 62 for the purpose of simplifying manufacture.

Since Vollhardt and Ghiani or Jamison et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Ghiani or Jamison et al would have been recognized in the pertinent art of Vollhardt.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Vollhardt integrally bundled tube end parts for the purpose of simplifying manufacture as recognized by Ghiani or Jamison et al.

Allowable Subject Matter

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 3744

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ LEONARD R. LEO /
PRIMARY EXAMINER
ART UNIT 3744

October 3, 2007